IN THE DRAWINGS

The attached sheet of drawings includes changes to Fig. 2. This sheet, which includes

Fig. 2, replaces the original sheet including Fig. 2.

Attachment: Replacement Sheet (1)

<u>REMARKS/ARGUMENTS</u>

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1 and 2 are pending in the application. No claim amendments are presented, thus, no new matter is added.

In the outstanding Office Action, the drawings were objected to because of a minor informality; Claim 1 was rejected under 35 U.S.C. §102(e) as anticipated by <u>DiGiovanni et al.</u> (U.S. Patent No. 6,735,985, hereinafter <u>DiGiovanni</u>); and Claim 1 was rejected under 35 U.S.C. §103(a) as upatentable over <u>Roba et al.</u> (U.S. Publication No. 2001/0020374, hereinafter <u>Roba</u>) in view of <u>Chen et al.</u> (U.S. Patent No. 6,876,804, hereinafter <u>Chen</u>).

In response to the objection to the drawings, Fig. 2 is amended to include the Legend "Background Art." Accordingly, Applicant respectfully requests that the objection to the drawings be withdrawn.

In response to the rejection of Claim 1 under 35 U.S.C. §102 and 35 U.S.C. §103, Applicants respectfully submits that independent Claim 1 recites novel features clearly not taught or rendered obvious by the applied references.

Independent Claim 1 recites a method of manufacturing an optical fiber, the optical fiber comprising a core and a cladding and having a maximum relative refractive index difference of the core with the cladding of 0.3% to 0.5% and a mode field diameter of 8 micrometers to 10 micrometers at a wavelength of 1310 nanometers. The method includes heating at least a portion of an optical fiber perform, and drawing an optical fiber at a speed of 500 meters per minute or more from the optical fiber preform heated. Independent Claim 1 further recites that the method comprises:

> ...impressing a spin on the optical fiber, while drawing,
> alternately in a clockwise direction and in a counterclockwise
> direction with a predetermined angle in such a manner that a

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maximum spatial frequency "y" of the spin per meter satisfies a
relationship of

$$exp(24x-12){\leq}y{\leq}4$$

where "x" is non-circularity of the cladding in percent, and
that a polarization mode dispersion of the optical fiber
manufactured is 0.5 ps/km$^{1/2}$ or less at the wavelength of 1310
nanometers.

Claim 1 was rejected under 35 U.S.C. §102(e) as anticipated by DiGiovanni.

Applicant respectfully submits that DiGiovanni fails to teach or suggest all the features

recited in independent Claim 1.

DiGiovanni describes a technique for drawing a circular core multimode optical fiber

using twist during draw to increase fiber bandwidth.[1] DiGiovanni, however, fails to teach or

suggest the close relationship between the non-circularity of the *cladding* and the polarization

mode dispersion (PMD) of the optical fiber, as recited in independent Claim 1.

In addressing this claimed feature, the Office Action cites col. 4, lines 7-8 and col. 5,

lines 1-2 of DiGiovanni. These cited portions of DiGiovanni describe that the twist is

alternated between a left hand twist and a right hand twist, and rotations are complete 360

degree rotations so a prescription for, e.g., 4 twists per meter, would involve 2.5 rotations in

each direction. DiGiovanni further describes that the twists are performed on a silica based

optical fiber having a circular core and a cladding, with the core having a larger effective

refractive index than cladding material that surrounds the core. DiGiovanni, however, fails to

teach or suggest taking the non-circularity of the cladding into account when spinning the

optical fiber to achieve a particular PMD, as recited in independent Claim 1.

DiGiovanni, specifically, fails to teach or suggest impressing a spin on the optical

fiber in such a manner that the that a maximum spatial frequency "y" of the spin per meter

satisfies a relationship of "*exp(24x-12)$\leq$y$\leq$4 where "x" is non-circularity of the cladding in*

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[1] DiGiovanni, Abstract.

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percent, and that a polarization mode dispersion of the optical fiber manufactured is 0.5 ps/km$^{1/2}$ or less at the wavelength of 1310 nanometers," as recited in independent Claim 1.

Accordingly, Applicant respectfully requests that the rejection of Claim 1 under 35 U.S.C. §102 be withdrawn.

Claim 1 was rejected under 35 U.S.C. §103(a) as upatentable over <u>Roba</u> in view of <u>Chen</u>. At p. 4, the Office Action admits that <u>Roba</u> fails to disclose "a particular spin frequency achieved in impressing spin on the fiber." In an attempt to remedy this deficiency, the Office Action relies on <u>Chen</u> and states that it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the references to arrive at Applicant's claims. In response to this rejection, Applicant respectfully submits that <u>Chen</u> fails to teach or suggest the claimed features for which it is relied upon as a secondary reference under 35 U.S.C. §103.

In addressing the above noted features of independent Claim 1, the Office Action relies on col. 3, lines 4-10 and col. 2, lines 41-45 of <u>Chen</u>. These cited portions of the <u>Chen</u> describe that a peak fiber spin rate is greater than 1.5 revolutions per meter, and more preferably between 1.2 and 4 revolutions per meter. <u>Chen</u> further describes that his method is used to produce an optical fiber having a PMD on the order of less than 0.05 ps/km$^{1/2}$.
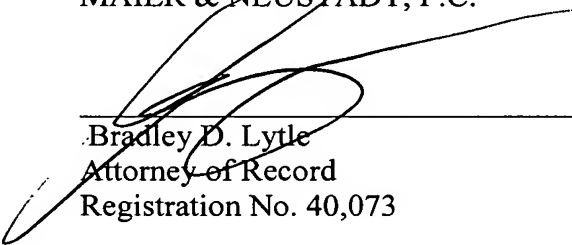
Neither <u>Chen</u>, nor <u>Roba</u>, however, teach or suggest taking the non-circularity of the cladding into account when spinning the optical fiber to achieve a particular PMD, as recited in independent Claim 1. Specifically, neither reference, alone or in combination, teaches or suggests impressing a spin on the optical fiber in such a manner that the that a maximum spatial frequency "y" of the spin per meter satisfies a relationship of *"exp(24x-12)≤y≤4 where "x" is non-circularity of the cladding in percent, and that a polarization mode dispersion of the optical fiber manufactured is 0.5 ps/km$^{1/2}$ or less* at the wavelength of 1310 nanometers," as recited in independent Claim 1.

Accordingly, Applicant respectfully requests that the rejection of Claim 1 under 35 U.S.C. §103 be withdrawn.

Consequently, in view of the present amendment and in light of the foregoing comments, it is respectfully submitted that the invention defined by Claims 1 and 2 is patentably distinguishing over the applied references. The present application is therefore believed to be in condition for formal allowance and an early and favorable reconsideration of the application is therefore requested.

Respectfully submitted,

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